

Claims

1. An X-ray irradiator for providing a uniform dose of X-ray beam irradiation to blood in a transfusion bag, said irradiator comprising in combination,

5 a) a chamber for mounting said transfusion bag;

b) X-ray tubes mounted on opposed sides of said chamber; said tubes providing X-ray beams of radiation to said bag from opposite sides of said bag; and

10 c) said tubes each providing radiation at a same selected energy level to said bag to thereby provide a total radiation energy to said bag which is substantially uniform throughout said bag.

15 2. An X-ray irradiator as in claim 1 wherein said tubes each provide a beam of radiation to fully cover the area of said ~~cannister~~ *transfusion bag* transverse to said beams.

3. An X-ray irradiator as in claim 1 further including

20 a) a cannister for confining said bag to have a uniform maximum thickness measured transverse to the beam radiation from said tubes.

4. An irradiator as in claim 3 wherein the cannister maintains the maximum thickness of said bag at 4cm.

5 5. An irradiator as in claim 1 wherein said X-ray tubes each provide radiation at 160kV, and are positioned 23cm from said bag to irradiate said bag with a surface dose of 2500 rads and an exit dose of 1500 rads.

10 6. An X-ray irradiator for providing a uniform dose of X-ray beam irradiation to a transfusion bag blood, said bag being in the form of a rectangular box-like container, said irradiator comprising in combination,

15 a) source of X-ray radiation providing a beam of X-ray to cover a defined vertical area; and,

b) means for positioning said bag with its thickness dimension perpendicular to said beam to permit said beam to irradiate a first surface of said bag;

c) a support for said bag; and

20 d) means for rotating said support to cause said beam to irradiate the surface of said bag opposite said first surface.

7. An X-ray irradiator for providing a uniform dose of X-ray beam irradiation to blood in a transfusion bag which bag is pliable and is contained in a cannister said irradiator comprising in combination,

a) a chamber for receiving said cannister containing mounting said transfusion bag;

*A* b) <sup>*has tubes*</sup> a first X-ray tube mounted to provide irradiation to *a opposite surfaces* a ~~first~~ surface of said bag;

c) the irradiation of said tubes effectively combining to provide uniform irradiation to the blood in said bag.

8. An X-ray irradiator as in claim 7 wherein said tubes each provide a beam of radiation to fully cover the area of said cannister transverse to said beams.

9 An X-ray irradiator as in claim 1 further including a ion pump to provide a vacuum in said X-ray tubes.

10. An X-ray irradiator as in claim 1 wherein

a) the same power supply supplies power to both tubes.